Hydrogen, Fuel Cells and Infrastructure Technologies

Program Focus: Research, develop, and validate fuel cell and hydrogen production, delivery, and storage technologies for transportation and stationary applications.

Major Line Items	FY02 Appropriation	FY03 Request	FY04 Request
Hydrogen Technology			
Production & Delivery R&D	$ 11,148	$ 11,760	$ 23,000
Storage R&D	$ 6,125	$ 11,335	$ 30,000
Infrastructure Validations	$ 5,696	$ 10,000	$ 13,160
Safey, Codes & Stds. and Utilization	$ 4,486	$ 4,786	$ 16,000
Education & Cross-Cutting Analysis	$ 1,437	$ 2,000	$ 5,822
Fuel Cell Technology			
Transporation Systems	$ 7,466	$ 7,600	$ 7,600
Distributed Energy Systems	$ 5,500	$ 7,500	$ 7,500
Stack Component R&D	$ 12,595	$ 14,900	$ 28,000
Fuel Processor R&D	$ 20,921	$ 25,300	$ 19,000
Technology Validation	$ -	$ 1,800	$ 15,000
Technical/Program Management Support	$ 200	$ 400	$ 400
Total	**$ 75,574**	**$ 97,381**	**$ 165,482**

Highlights

- Advanced hydrogen production technologies (photoelectrochemical, photobiological, reforming, and separation)
- Solid-state hydrogen storage materials (carbon, hydrides, etc.)
- Safety, performance, and connectivity standards for hydrogen fueled devices
- Integrated fuel cell vehicle and hydrogen infrastructure technology validation
- Fuel cell stack component cost reduction (catalyst and membrane) and stationary systems development

FreedomCAR & Vehicle Technologies

Program Focus: Enable America to use less petroleum through research and development of technologies to improve the energy efficiency of cars and trucks.

Major Line Items	FY02 Appropriation	FY03 Request	FY04 Request
Vehicle Systems	$ 14,869	$ 14,414	$ 14,514
Innovative Concepts	$ 600	$ 1,600	$ 500
Hybrid and Electric Propulsion	$ 47,121	$ 41,973	$ 49,563
Advanced Combustion Engine	$ 47,160	$ 40,156	$ 37,085
Materials Technology	$ 39,158	$ 29,400	$ 39,640
Fuels Technology	$ 24,650	$ 17,999	$ 6,800
Technology Introduction	$ 3,450	$ 5,900	$ 5,900
Technical/Program Mgmt. Support	$ 2,385	$ 2,121	$ 2,121
Biennial Peer Review of FreedomCAR	NA	$ -	$ 1,500
Energy Efficiency Science Initiative	$ 1,959	$ -	$ -
Total	**$ 181,352**	**$ 153,563**	**$ 157,623**

Ford Model U Hydrogen-Fueled ICE/Electric Hybrid Concept Car

Highlights

- New propulsion & light-weighting materials for fuel cell and combustion hybrid vehicles
- Increased emphasis on long-term energy storage for combustion and fuel cell hybrid vehicles
- Complete light truck engine effort with greatly improved efficiency
- Increased truck efficiency by greater electrification & aero drag reduction